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K.P. KAUFFMAN COMPANY, INC.

WORLD TRADE CENTER
1675 BROADWAY, 28TH FLOOR
DENVER, COLORADO 80202-4628

TELEPHONE (303) 825-4822
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April 12, 2013

Mr. Nathan Wiser
United States EPA Region 8
SOC-EISC
1595 Wynkoop Street
Denver, CO 80202-1129

RE: Wattenberg Disposal, LLC
Quarterly Report for Suckla Farms Injection Well #1
2013 Pressure Fall-Off Test

CO10938-02115

Dear Mr. Wiser,

Enclosed please find the Quarterly Injection Report for the period of January 1, 2013 through March 31, 2013 for the above referenced facility, including water analyses for all three months. Additionally, please find enclosed the Pressure Fall-Off Test Report for 2013 performed during the week of March 16, 2013.

If you have any questions or need additional information, please do not hesitate
contacting me at 303-825-4822 or slaramesa@kpk.com

Sincerely,

Slaramesa

Susana Lara-Mesa
Engineering Project Manager

U2 Enclosed
Date 4/29/13
Initial DB



Cc: Caren Johannes, HMWMD
Troy Swain, Weld County Dept. of Public Health and Environment

KPK files



April 11, 2013

Ms. Susana Lara-Mesa
K.P. Kauffman Company, Inc
1675 Broadway, Suite 2800
Denver, Colorado 80202

RE: EPA Falloff Test Analysis
Suckla Farms Injection Well (EPA) #1
API # 05-123-14291
SHL: 2140' FNL, 2020' FEL
Section 10 T1N R67W
Lyons Sandstone
Weld County, Colorado

Dear Ms Lara-Mesa:

The EPA pressure falloff test analysis is attached for the Suckla Farms Injection Well (EPA) #1, Weld County, Colorado.

IPT appreciates the opportunity to work with you and KP Kauffman on this analysis. Please do not hesitate to call if you have any questions or require and additional assistance.

Sincerely,

Eric Marshall, P.E.
Engineering Supervisor

1) **Company Name & Address**

KP Kauffman Company, Inc.
1675 Broadway, Suite 2800
Denver, Colorado 80202

2) **Test Well Name & Location**

Suckla Farms Injection Well #1
NW/4 Section 10-T1N-R67W
Weld County, Colorado

3) **Facility Contact Person**

Susana Lara-Mesa 303-825-4822

Report Prepared by:
Eric Marshall P.E., 720-878-7491
Integrated Petroleum Technologies, Inc.
405 Urban Street, Suite 401, Lakewood, CO 80228

4) **Openhole Log**

See attached Dual Induction Log run 07/02/89
Lyons Sandstone injection zone

5) **Well Schematic**

See attached well schematic diagram

Wellbore radius: 0.328'
Completed interval depths: Lyons, 9276'-9418'
Type of completion: Cased & cemented, injection under a packer set at 9040'
via 2-7/8" fiber-lined tubing

6) **Date of Fill Depth**

Current fill depth is 9476', recorded in March, 2003.

7) **Offset well information**

The nearest well completed in the Lyons formation is the Wattenberg SWD #1, NWSW Section 19-2N-66W, operated by Anadarko. This well is approximately 4½ miles to the north-east. No interference between these two wells is assumed to occur for purposes of this analysis.

8) Chronological Listing of Daily Testing Activities

Company has been injecting water into the subject well during daylight hours for five to six days per week for the past year. Injection averaged 656 bbls per day since the last test.

03/16/13	Intermittent daylight injection stopped, well shut in
03/18/13	Tandem gauges installed at 9045' WLM
03/20/13	Injection began at 41.6 BWPH
03/21/13	Injection stopped, 998.9 BW injected
03/25/13	Gauges off bottom (total SI= 97.9 hrs)

9) Electronic Submission of Raw Data

Attached CD contains a file of raw time-pressure-temperature data (at packer depth) for both gauges.

10) Tabular Summary of Injection Rates

Tabular summary of injection rates for the three months preceding the falloff test is attached, as is a rate vs. time plot for the previous three months. This rate-time data is also included in a .csv file on the attached CD.

11) Offset Well Rate Information

As discussed above, no offset well rate information is considered to be useful in this test analysis.

12) Hard Copy of Time and Pressure Data

A tabular summary of raw time, pressure & temperature data (filtered) is attached.

13) Pressure Gauge Information

Bottom Gauge:

15,000 psi, PG 7302-5, SN 301 DHI Oil Operated Piston Gauge

SN5260

Installed at: 9045.0' WLM

Pressure accuracy: 0.050% FS (+/- 7.5 psi)

Pressure resolution: 0.034% FS (+/- 5.10 psi).

Last calibration: March, 2013

Top Gauge:

15,000 psi, PG 7302-5, SN 301 DHI Oil Operated Piston Gauge

SN5633

Installed at: 9044.0' WLM

Pressure accuracy: 0.050% FS (+/- 7.5 psi)

Pressure resolution: 0.032% FS (+/- 4.82 psi).

Last calibration: March, 2013

Calibration certificates for both gauges are attached.

Gauges supplied by Omega Well Monitoring (info@omegawell.com)

14) General Test Information

Date of test: Injection commenced March 19, 2013, ceased March 20, 2013.

Bottom hole pressure monitored from March 20, 2013 to March 25, 2013.

Rate/Time information plotted from January 1, 2013 to March 25, 2013.

Time synchronization: see attached data files.

Location of shut-in valve: well was shut in at the wellhead

15) Reservoir Parameters

Water viscosity (μ):	0.2313 cp	(correlation)
Porosity (ϕ):	6%	(measured- density log porosity)
Total Compressibility (ct):	9.36e-06	(correlation)
Formation Volume Factor:	1.055 rb/stb	(correlation)

Initial formation reservoir pressure: From the attached semi-log Diagnostic Analysis Radial diagnostic plot, p^* is approximately 3809 psia at perforation midpoint. This is 9 psi below the 3828 p^* estimated from the semi-log (radial) Diagnostic Analysis plot on the last pressure falloff test run in March, 2012.

Final injection pressure is approximately 4,626 psi, 130 psi above the 24-hour injection pressure on the March, 2012 pressure falloff test.

A summary of historical estimated Initial Formation Reservoir Pressure (p*) values at 9347' perforation mid-point using a 0.442 psi/ft hydrostatic gradient follows:

July, 1993	4417 psia, unreliable (23 hour shut in, surface gauges, no radial flow)
November, 1997	3590 psia
October, 2001	3760 psia
February, 2003	3830 psia
April, 2004	3859 psia (radial plot, multi-layer synthesis)
April, 2005	3647 psia (radial plot, multi-layer synthesis)
April, 2006	3656 psia (radial plot, multi-layer synthesis)
April, 2007	3816 psia (radial plot, radial flow portion of radial test analysis)
March, 2008	3694 psia (radial plot, single layer)
March, 2009	3912 psia (radial plot, single layer)
March, 2010	3931 psia (radial plot, single layer)
March, 2011	3854 psia (radial plot, single layer)
March, 2012	3828 psia (radial plot, single layer)
March, 2013	3809 psia (radial plot, single layer)

Date Reservoir Pressure was last stabilized: Stabilization likely occurred during a workover in March, 2003, 132 months prior to this test. The 88.2 hour shut in period preceding the current test may have been long enough to see stabilization, as pressure was fairly steady at the start of injection.

Justified Interval Thickness: Tracer survey run 7/12/93 & temperature logs run 11/01/01 indicate entire 142' perforated interval is taking fluid. Wireline 1/8/03 & during 3/03 workover shows all perforations open.

16) Waste Plume

Cumulative injection volume into completed interval: 5,757,033 bbls as of March 19, 2013 at 07:45 hrs (post-test volume, includes the 998.99 bbls injected on the current test). These figures were determined by using injection volumes supplied by the Colorado Oil & Gas Conservation Commission through December, 1997, and injection volumes supplied by the operator from January, 1998, through March, 2013.

There were 209,215 bbls water injected into this well in the year since the last test.

Calculated radial distance to the waste front: We are unable to empirically calculate a distance to the waste front from this type of test as there is no contrast between historic waste plume viscosity and formation fluid viscosity.

Average historical waste fluid viscosity: To our knowledge, no direct viscosity measurements have been taken. Waste plume viscosity is assumed to be the same as formation fluid viscosity. Essentially all of the waste fluid injected into the Suckla Farms #1 has been oilfield produced water, which does not have a significant contrast to the Lyons formation water.

17) Injection Period

Time: 07:46:48 AM 3/20/2013 to 07:47:42 AM 3/21/2013, 24.02 hours, 998.99 bbls

Type fluid: oilfield brine/produced water

Pump Type: Water plant injection pump

Rate Meter: Halliburton digital turbine meter. SWD tanks were strapped before & after to confirm volume.

Final injection pressure, surface: unknown

Final injection pressure at 9347' mid-perf: 4626.2 psia

Final injection temperature at 9020' gauge depth: 150.69° F

18) Falloff Period

Total shut-in time: 07:47:42 AM 3/21/13 to 10:17:12 AM 3/25/13, 97.94 hours

Final shut-in pressure at 9347' mid-perf: 4268.7 psia

Final shut-in temperature at 9020' gauge depth: 238.9°F

19) Pressure Gradient

A static gradient was run at the conclusion of this test. No fluid level was noted as the fluid level appeared to be at surface.

20-21) Calculated Test Data and Corresponding Graphs

Please see attached graphs of the current test:

Data Chart (Rate & Pressure vs Time)

Diagnostic Analysis (Log-Log Typecurve)

Diagnostic Analysis (Radial Semi-Log Analysis)

Two Layer Reservoir Model (Radial and Typecurve)

The Rate vs. Time plot shows bottomhole injection pressure had essentially stabilized after the 24 hour injection period at 4,626 psi. No pressure anomalies due to gauge temperature de-stabilization are evident during the test. Data quality appears good. Pressure change during later test times is 0.4 psi per time step. Gauge resolution (+/-0.03 psi) is adequate for the observed pressure change.

The Diagnostic Analysis (Typecurve) shows that a short radial flow period was reached approximately 73.3 hours into the falloff portion of the test. Analysis of this region gives a system permeability of 0.318 md, with a skin factor of -5.64.

Using the permeability value calculated from the falloff period, we can calculate a radius of investigation from the falloff test as follows for $t = 97.94$ hrs, with other parameters as defined above:

$$r_{inv} = \sqrt{\frac{kt}{948\phi\mu c}} = \sqrt{\frac{0.318 \cdot 97.94}{948 \cdot .06 \cdot 0.2313 \cdot 9.36 \times 10^{-6}}} = 502.9'$$

Radius of investigation = 502.9'

Plots were generated using the Saphir software package available from Kappa Engineering, Paris, France. A .ks3 data file is included on the attached CD.

22) Comparison with Petition Demonstration

Condition #5 on Page 12 in Permit # CO10938-02115 stipulates an upper limit of 8,300,000 barrels of injected waste. This corresponds with a waste front of 1,320', assuming piston displacement. The current volume of 5,757,033 barrels injected corresponds to a waste front of 1,129', assuming an injection interval of 142'. While the effective injection interval may be less than 142', the additional fracture porosity postulated in this, and previous reports makes 1,129' a conservative estimate of the radial front of the waste plume. If fractures exist, then the reservoir must contain additional storage in the fracture system, in addition to the 6% matrix porosity. This will have the result of increasing the effective porosity, which decreases the distance to the waste front for any assumed injection volume or effective zone height.

The injection front has progressed 20' since the March 2012 test. There are 191 feet remaining for the front to advance before the 1320' permit limit is reached. This represents approximately 9 years and 7 months at current conditions.

Equation:

$$r_{inj} = \sqrt{\frac{5.615 \cdot V \cdot B_w}{\pi \cdot h \cdot \phi}} = \sqrt{\frac{5.615 \cdot 5,757,033 \cdot 1.055}{142 \cdot 0.06 \cdot \pi}} = 1,129'$$

where $V = 5,547,819$ bbls, $B_w = 1.055$ rb/stb, $h = 142'$, $\phi = 0.06$

It is our opinion that the current test design is adequate to investigate this reservoir, given the constraints of daylight-only injection operations and available water storage. We recommend that subsequent tests follow this same design, which has now been used for seven consecutive annual tests.

23) Radioactive Tracer Survey

A radioactive tracer was not run during this test. The last radioactive tracer survey run in the Suckla Farms #1 was done in July, 1993.

24) Unusual Permit Approval Conditions

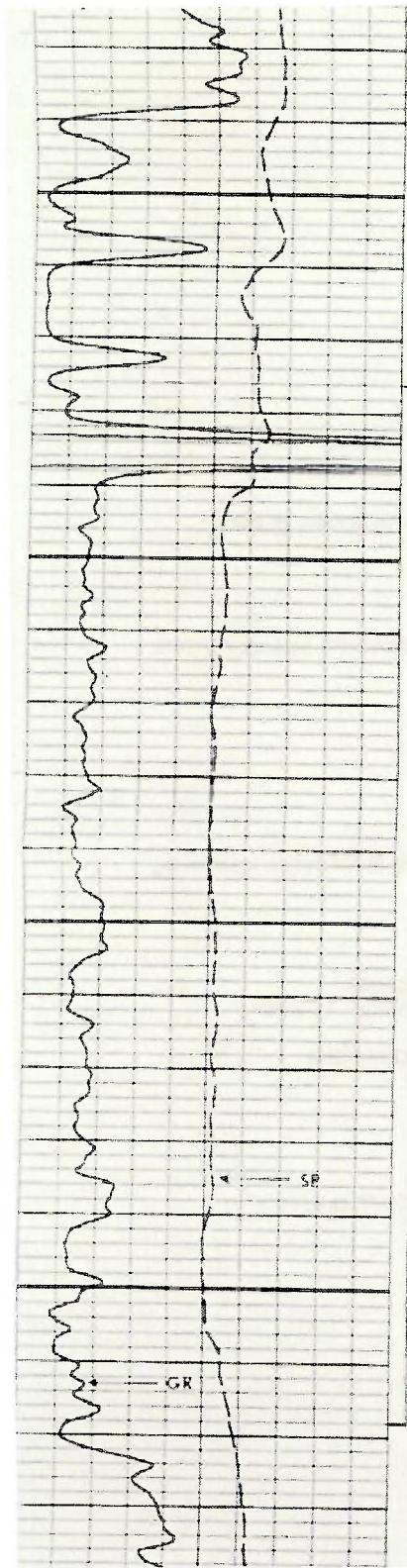
We are not aware of any unusual permit approval conditions.

Report prepared for Wattenberg Disposal, LLC. by

Integrated Petroleum Technologies, Inc.

Eric Marshall, P.E.
April 11, 2013

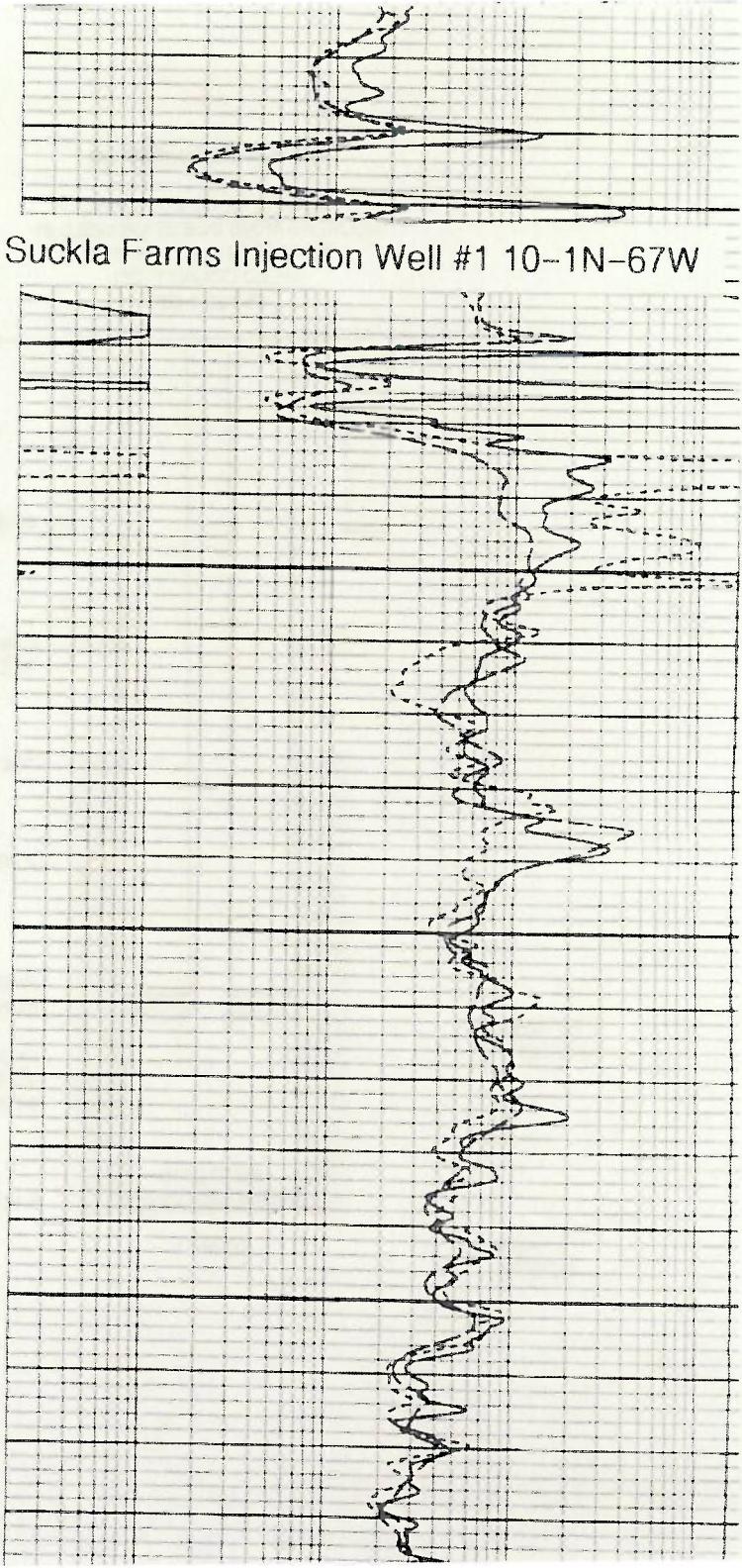
Reference: EPA Region VI UIC Pressure Falloff Testing Guideline, Third Revision, August 8, 2002



09300

09400

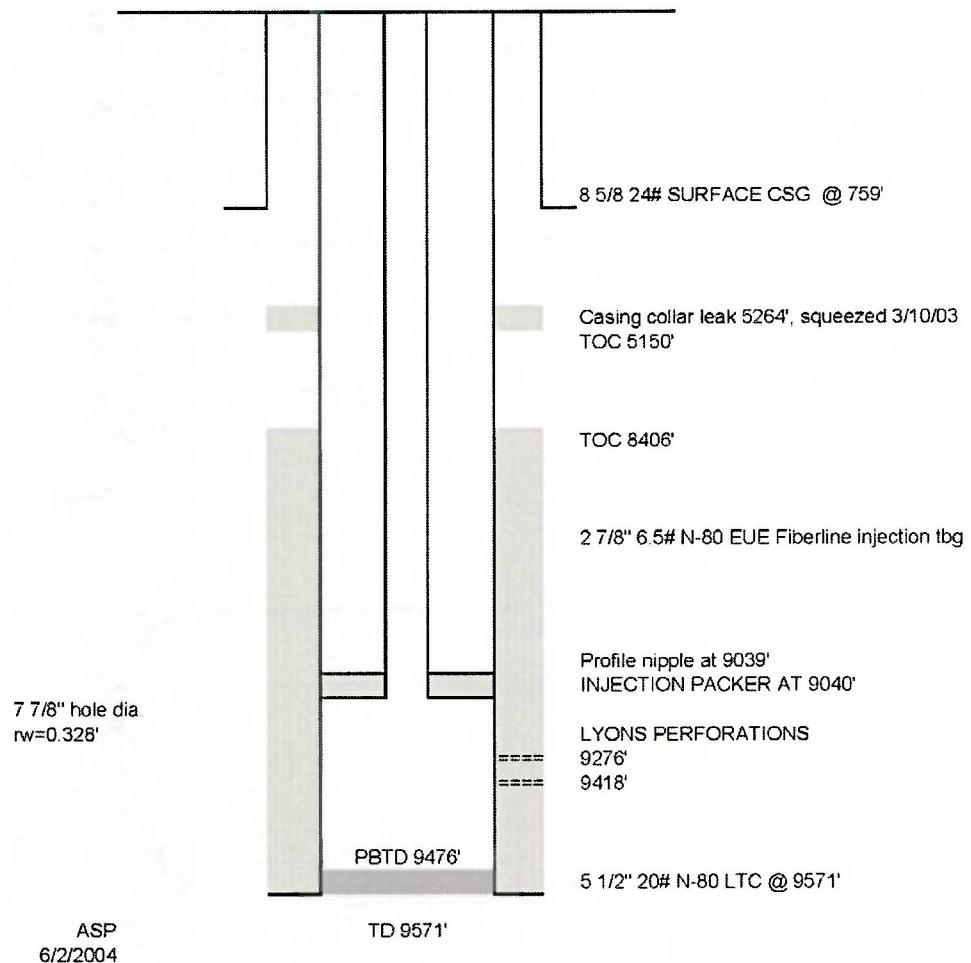
REF



Suckla Farms Injection Well #1 10-1N-67W

WELLBORE SCHEMATIC

WATTENBERG DISPOSAL
SUCKLA FARMS INJECTION WELL #1
NW/4 SECTION 10-1N-67W
WELD COUNTY, CO
05-123-14291



Suckla Farms Injection Well #1
 Injection History
 2013 EPA Test

DETAIL INJECTION HISTORY						
# PUMPS	RATE	BBLS	INC HRS	START TIME	END TIME	CUM HRS
-1119.09						
0	0	0	0.00	1/1/2013 7:00	1/1/2013 7:00	0.00
			24.00			24.00
0	0	0	0.00	1/2/2013 7:00	1/2/2013 7:00	24.00
			24.00			48.00
1	-1119.09	539	11.56	1/3/2013 7:00	1/3/2013 18:33	59.56
			12.44			72.00
2	-2238.18	363	3.79	1/4/2013 7:00	1/4/2013 10:47	75.79
			20.21			96.00
2	-2238.18	0	0.00	1/5/2013 7:00	1/5/2013 7:00	96.00
			24.00			120.00
1	-1119.09	0	0.00	1/6/2013 7:00	1/6/2013 7:00	120.00
			24.00			144.00
2	-2238.18	880	9.44	1/7/2013 7:00	1/7/2013 16:26	153.44
			14.56			168.00
2	-2238.18	873	9.36	1/8/2013 7:00	1/8/2013 16:21	177.36
			14.64			192.00
2	-2238.18	875	9.38	1/9/2013 7:00	1/9/2013 16:22	201.38
			14.62			216.00
2	-2238.18	890	9.54	1/10/2013 7:00	1/10/2013 16:32	225.54
			14.46			240.00
2	-2238.18	950	10.19	1/11/2013 7:00	1/11/2013 17:11	250.19
			13.81			264.00
2	-2238.18	915	9.81	1/12/2013 7:00	1/12/2013 16:48	273.81
			14.19			288.00
0	0	0	0.00	1/13/2013 7:00	1/13/2013 7:00	288.00
			24.00			312.00
0	0	0	0.00	1/14/2013 7:00	1/14/2013 7:00	312.00
			24.00			336.00
2	-2238.18	321	3.44	1/15/2013 7:00	1/15/2013 10:26	339.44
			20.56			360.00
2	-2238.18	604	6.48	1/16/2013 7:00	1/16/2013 13:28	366.48
			17.52			384.00
2	-2238.18	531	5.69	1/17/2013 7:00	1/17/2013 12:41	389.69
			18.31			408.00
1	-1119.09	712	15.27	1/18/2013 7:00	1/18/2013 22:16	423.27
			8.73			432.00
0	0	0	0.00	1/19/2013 7:00	1/19/2013 7:00	432.00
			24.00			456.00
0	0	0	0.00	1/20/2013 7:00	1/20/2013 7:00	456.00
			24.00			480.00
2	-2238.18	486	5.21	1/21/2013 7:00	1/21/2013 12:12	485.21
			18.79			504.00
2	-2238.18	437	4.69	1/22/2013 7:00	1/22/2013 11:41	508.69
			19.31			528.00
2	-2238.18	368	3.95	1/23/2013 7:00	1/23/2013 10:56	531.95
			20.05			552.00
2	-2238.18	629	6.74	1/24/2013 7:00	1/24/2013 13:44	558.74
			17.26			576.00
2	-2238.18	699	7.50	1/25/2013 7:00	1/25/2013 14:29	583.50
			16.50			600.00
2	-2238.18	430	4.61	1/26/2013 7:00	1/26/2013 11:36	604.61
			19.39			624.00
0	0	0	0.00	1/27/2013 7:00	1/27/2013 7:00	624.00
			24.00			648.00
2	-2238.18	611	6.55	1/28/2013 7:00	1/28/2013 13:33	654.55
			17.45			672.00
2	-2238.18	578	6.20	1/29/2013 7:00	1/29/2013 13:11	678.20
			17.80			696.00
2	-2238.18	453	4.86	1/30/2013 7:00	1/30/2013 11:51	700.86
			19.14			720.00
1	-1119.09	690	14.80	1/31/2013 7:00	1/31/2013 21:47	734.80
			9.20			744.00
1	-1119.09	575	12.33	2/1/2013 7:00	2/1/2013 19:19	756.33
			11.67			768.00
0	0	0	0.00	2/2/2013 7:00	2/2/2013 7:00	768.00
			24.00			792.00
0	0	0	0.00	2/3/2013 7:00	2/3/2013 7:00	792.00
			24.00			816.00
1	-1119.09	710	15.23	2/4/2013 7:00	2/4/2013 22:13	831.23
			8.77			840.00
1	-1119.09	825	17.69	2/5/2013 7:00	2/6/2013 0:41	857.69
			6.31			864.00

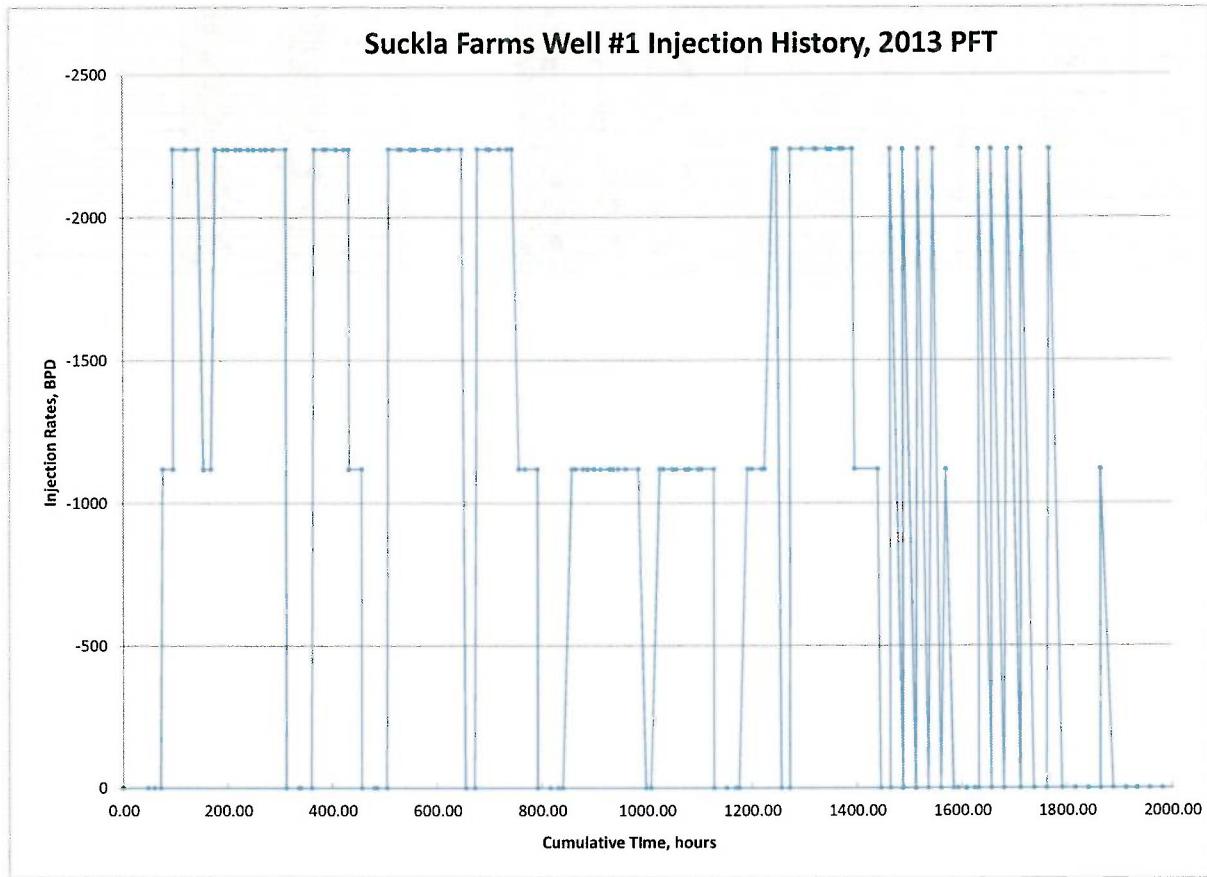
SUMMARY INJECTION HISTORY			
START	END	RATE	HRS
0.00	48.00	0	48.00
48.00	59.56	0	11.56
59.56	72.00	0	12.44
72.00	75.79	0	3.79
75.79	96.00	-1119.09	20.21
96.00	96.00	0	0.00
96.00	120.00	-2238.18	24.00
120.00	120.00	0	0.00
120.00	144.00	-2238.18	24.00
144.00	153.44	0	9.44
153.44	168.00	-1119.09	14.56
168.00	177.36	0	9.36
177.36	192.00	-2238.18	14.64
192.00	201.38	0	9.38
201.38	216.00	-2238.18	14.62
216.00	225.54	0	9.54
225.54	240.00	-2238.18	14.46
240.00	250.19	0	10.19
250.19	264.00	-2238.18	13.81
264.00	273.81	0	9.81
273.81	288.00	-2238.18	14.19
288.00	288.00	0	0.00
288.00	312.00	-2238.18	24.00
312.00	312.00	0	0.00
312.00	336.00	0	24.00
336.00	339.44	0	3.44
339.44	360.00	0	20.56
360.00	366.48	0	6.48
366.48	384.00	-2238.18	17.52
384.00	389.69	0	5.69
389.69	408.00	-2238.18	18.31
408.00	423.27	0	15.27
423.27	432.00	-2238.18	8.73
432.00	456.00	-1119.09	24.00
456.00	456.00	0	0.00
456.00	480.00	0	24.00
480.00	485.21	0	5.21
485.21	504.00	0	18.79
504.00	508.69	0	4.69
508.69	528.00	-2238.18	19.31
528.00	531.95	0	3.95
531.95	552.00	-2238.18	20.05
552.00	558.74	0	6.74
558.74	576.00	-2238.18	17.26
576.00	583.50	0	7.50
583.50	600.00	-2238.18	16.50
600.00	604.61	0	4.61
604.61	624.00	-2238.18	19.39
624.00	624.00	0	0.00
624.00	648.00	-2238.18	24.00
648.00	654.55	0	6.55
654.55	672.00	0	17.45
672.00	678.20	0	6.20
678.20	696.00	-2238.18	17.80
696.00	700.86	0	4.86
700.86	720.00	-2238.18	19.14
720.00	734.80	0	14.80
734.80	744.00	-2238.18	9.20
744.00	756.33	0	12.33
756.33	768.00	-1119.09	11.67
768.00	768.00	0	0.00
768.00	792.00	-1119.09	24.00
792.00	792.00	0	0.00
792.00	816.00	0	24.00
816.00	831.23	0	15.23
831.23	840.00	0	8.77
840.00	857.69	0	17.69
857.69	864.00	-1119.09	6.31
864.00	879.01	0	15.01

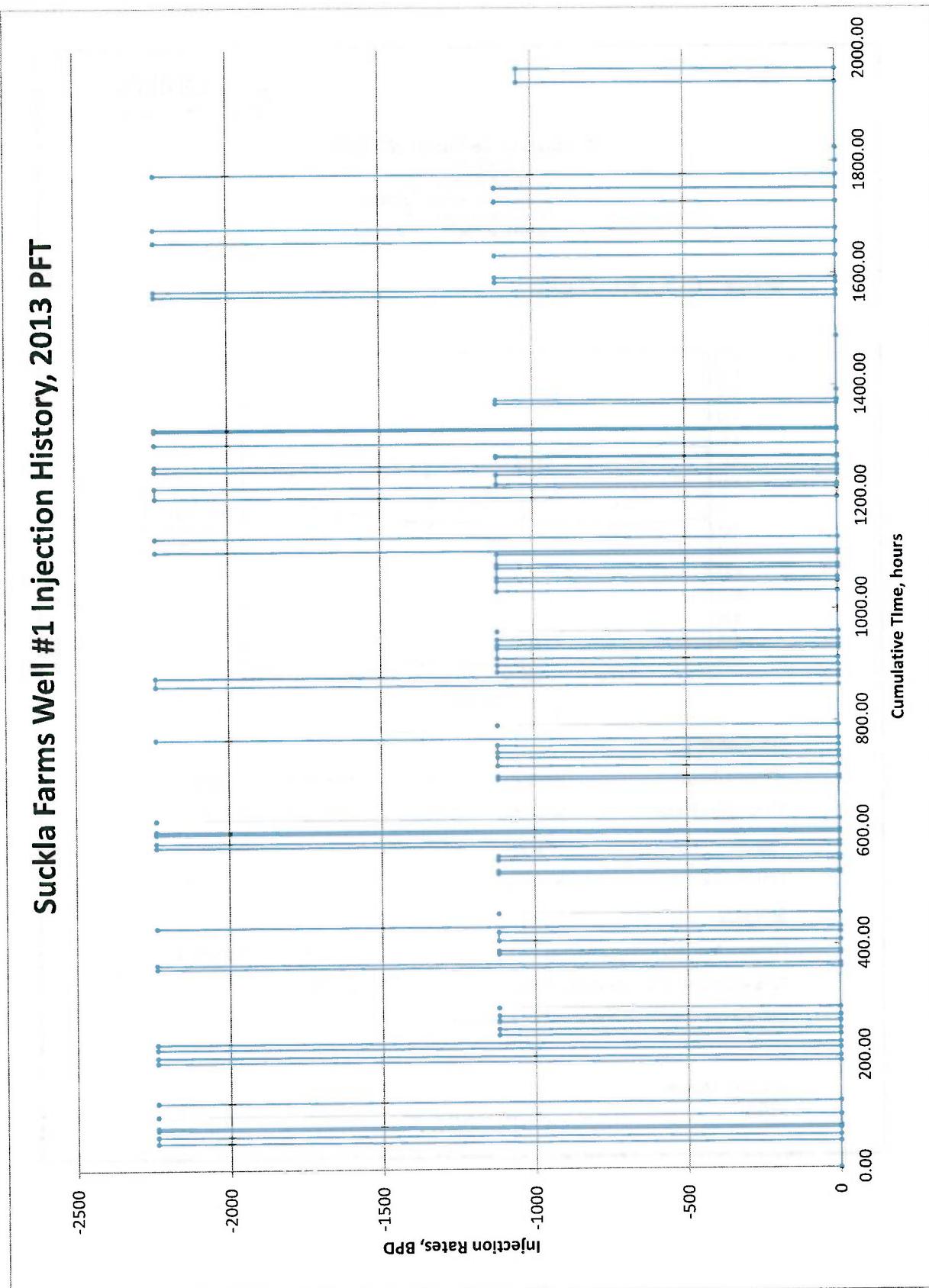
1	-1119.09	700	15.01	2/6/2013 7:00	2/6/2013 22:00	879.01
	0		8.99			888.00
1	-1119.09	560	12.01	2/7/2013 7:00	2/7/2013 19:00	900.01
	0		11.99			912.00
1	-1119.09	825	17.69	2/8/2013 7:00	2/9/2013 0:41	929.69
	0		6.31			936.00
1	-1119.09	450	9.65	2/9/2013 7:00	2/9/2013 18:39	945.65
	0		14.35			960.00
0	0	0	0.00	2/10/2013 7:00	2/10/2013 7:00	960.00
	0		24.00			984.00
1	-1119.09	675	14.48	2/11/2013 7:00	2/11/2013 21:28	998.48
	0		9.52			1008.00
1	-1119.09	785	16.84	2/12/2013 7:00	2/12/2013 23:50	1024.84
	0		7.16			1032.00
1	-1119.09	825	17.69	2/13/2013 7:00	2/14/2013 0:41	1049.69
	0		6.31			1056.00
1	-1119.09	825	17.69	2/14/2013 7:00	2/15/2013 0:41	1073.69
	0		6.31			1080.00
1	-1119.09	863	18.51	2/15/2013 7:00	2/16/2013 1:30	1098.51
	0		5.49			1104.00
0	0	0	0.00	2/16/2013 7:00	2/16/2013 7:00	1104.00
	0		24.00			1128.00
0	0	0	0.00	2/17/2013 7:00	2/17/2013 7:00	1128.00
	0		24.00			1152.00
1	-1119.09	825	17.69	2/18/2013 7:00	2/19/2013 0:41	1169.69
	0		6.31			1176.00
1	-1119.09	750	16.08	2/19/2013 7:00	2/19/2013 23:05	1192.08
	0		7.92			1200.00
1	-1119.09	863	18.51	2/20/2013 7:00	2/21/2013 1:30	1218.51
	0		5.49			1224.00
1	-1119.09	790	16.94	2/21/2013 7:00	2/21/2013 23:56	1240.94
	0		7.08			1248.00
2	-2238.18	781	8.37	2/22/2013 7:00	2/22/2013 15:22	1256.37
	0		15.63			1272.00
2	-2238.18	175	1.88	2/23/2013 7:00	2/23/2013 8:52	1273.88
	0		22.12			1296.00
0	0	0	0.00	2/24/2013 7:00	2/24/2013 7:00	1296.00
	0		24.00			1320.00
2	-2238.18	335	3.59	2/25/2013 7:00	2/25/2013 10:35	1323.59
	0		20.41			1344.00
2	-2238.18	659	7.07	2/26/2013 7:00	2/26/2013 14:03	1351.07
	0		16.93			1368.00
2	-2238.18	595	6.38	2/27/2013 7:00	2/27/2013 13:22	1374.38
	0		17.62			1392.00
2	-2238.18	329	3.53	2/28/2013 7:00	2/28/2013 10:31	1395.53
	0		20.47			1416.00
2	-2238.18	532	5.70	3/1/2013 7:00	3/1/2013 12:42	1421.70
	0		18.30			1440.00
1	-1119.09	0	0.00	3/2/2013 7:00	3/2/2013 7:00	1440.00
	0		24.00			1464.00
0	0	0	0.00	3/3/2013 7:00	3/3/2013 7:00	1464.00
	0		24.00			1488.00
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	0		14.90			1560.00
2	-2238.18	782	8.39	3/7/2013 7:00	3/7/2013 15:23	1568.39
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1	-1119.09	748	16.04	3/8/2013 7:00	3/8/2013 23:02	1600.04
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2	-2238.18	492	5.28	3/14/2013 7:00	3/14/2013 12:16	1742.83
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	0		24.00			1790.83
2	-2238.18	119	1.28	3/16/2013 7:00	3/16/2013 8:16	1792.11
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879.01	888.00	-1119.09	8.99
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900.01	912.00	-1119.09	11.99
912.00	929.69	0	17.69
929.69	936.00	-1119.09	6.31
936.00	945.65	0	9.65
945.65	960.00	-1119.09	14.35
960.00	960.00	0	0.00
960.00	984.00	-1119.09	24.00
984.00	998.48	0	14.48
998.48	1008.00	0	9.52
1008.00	1024.84	0	16.84
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1032.00	1049.69	0	17.69
1049.69	1056.00	-1119.09	6.31
1056.00	1073.69	0	17.69
1073.69	1080.00	-1119.09	6.31
1080.00	1098.51	0	18.51
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1104.00	1104.00	0	0.00
1104.00	1128.00	-1119.09	24.00
1128.00	1128.00	0	0.00
1128.00	1152.00	0	24.00
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1169.69	1176.00	0	6.31
1176.00	1192.08	0	16.08
1192.08	1200.00	-1119.09	7.92
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1344.00	1351.07	0	7.07
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0	0	0.00	3/19/2013 7:00	3/19/2013 7:00	1864.11
	0	24.00			1888.11
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					3/26/2013 7:00

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1864.11	1888.11	0	24.00
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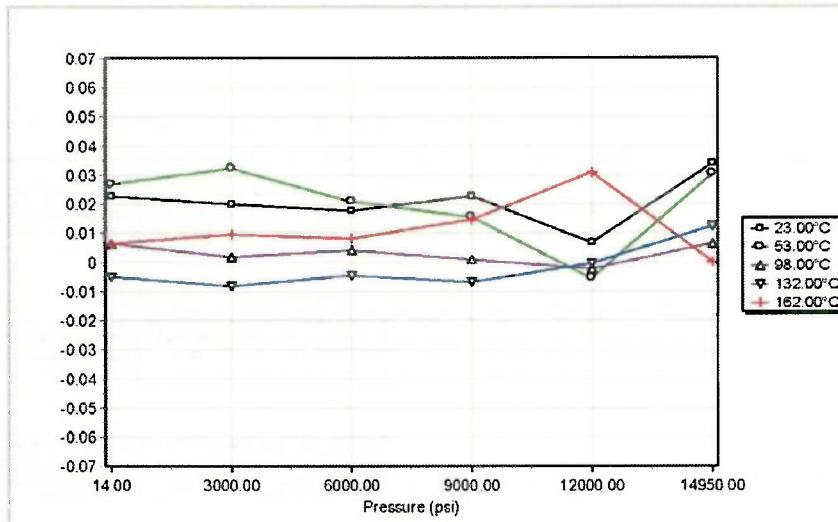




Calibration Certificate NO:5260

Model: Shortline
Serial Number: 5260
Max Pressure Rating: 15000 psi
Temperature Rating: 177 °C
Calibration Date: March 2013

Measurements and Derived Results



Specifications

Pressure Range:	Minimum:	50 psi	Maximum:	15000 psi
Temperature Range:	Minimum	0 °C	Maximum:	177 °C
Pressure	Accuracy:	± 0.05%FS		± 7.500 psi
Temperature	Accuracy			± 1.0 °C

Summary

Pressure Accuracy (Maximum Error):	+ 5.10psi	0.034%FS
Temperature Accuracy (Maximum Error)	+ 0.20 °C	

Calibrations are verified to 95% of maximum full scale pressure

1 of 2

#105, 1437 - 47Ave NE
Calgary, AB
T2E 6N7

www.omegawell.com

info@omegawell.com

Calibration Certificate NO: 5260
Calibration Date: March 2013

Working Standards

- DHI Oil Operated Piston Gauge – Model PG 7302-5, SN301 – M Range 100kPa to 500MPa \pm 0.005% FS.
- DHI 40kg Mass Set MS-AMH-40, SN2266
- Hart Scientific Black Stack – Model 2560 - SN 91362.
- Hart Scientific Platinum Resistance Thermometer – Model 5614 – SN 496051 with an accuracy of \pm 0.006 °C (\pm 0.011 °F).

Traceability Statement

All working standards are traceable to nationally or internationally recognized standards.

- DHI Model DHI PC-7302-5, SN301 traceability of mass is maintained through reference mass set R100 through determination by National Institute of Standards and Technology, NIST, United States.
- The traceability of mass is maintained to the fundamental unit of the kilogram [kg] through reference mass set R100 through determinations performed by National Institute of Standards and Technology, NIST, United States.
- The measured true mass values of the PG7302-5 components is as follows:
 - The Piston mass is equal to 200.0011g with an uncertainty of \pm 3 mg and has an average density of 7230 kg/m³.
 - The Mass Carrying Bell is equal to 800.0044 g with an uncertainty of \pm 8 mg and has an average density of 6100 kg/m³.
 - The Mass Set is made up of 10 masses of 10.1 kg or less adjusted to \pm 20 ppm of their nominal true mass values and has an average density of 8000 kg/m³. The uncertainty of the masses in mg is guaranteed to be less than 5 ppm or 1 mg, whichever is greater.
- The traceability of effective area is maintained through the 2004 DHI Piston-Cylinder calibration Chain to the National Institute of Standards and Technology, NIST, United States, and the Laboratoire national d'Essais, LNE, France.
- All DH calibrations are performed in accordance with DHI laboratory Quality assurance manual, Rev C September 2003 and conform to ISO/IEC 17025, ANSI/NCSL Z540-1 - 1994, ISO/IEC Guide 25, ISO 9002, ISO-10012-1, MIL-STD 45662A.
- The Platinum Resistance Thermometer (PRT) Model 5614, SN496051 was calibrated at the ice point and/or by comparison to Standard Platinum Resistance Thermometers (SPRTs). These SPRTs are calibrated to the International Temperature Scale of 1990 (ITS-90) and their calibration is traceable to the National Institute of Standards and Technology (NIST).
- Omega Well Monitoring local gravity has been determined through the National Geodetic Survey of Canada.



Calibration Performed and Approved By

This certificate shall not be reproduced without the written approval of the laboratory.
Omega Well Monitoring recommended recalibration interval is 1 year.

2 of 2

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Calgary, AB
T2E 0N7

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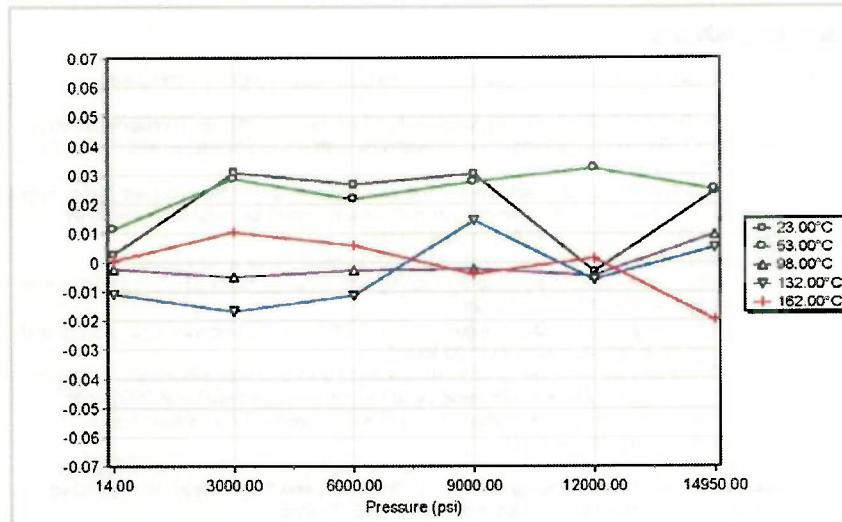
info@omegawell.com



Calibration Certificate NO:5633

Model: Shortline
Serial Number: 5633
Max Pressure Rating: 15000 psi
Temperature Rating: 177 °C
Calibration Date: March 2013

Measurements and Derived Results



Specifications

Pressure Range:	Minimum:	50 psi	Maximum:	15000 psi
Temperature Range:	Minimum:	0 °C	Maximum:	177 °C
Pressure:	Accuracy:	± 0.05%FS		± 7.500 psi
Temperature:	Accuracy:			± 1.0 °C

Summary

Pressure Accuracy (Maximum Error):	+ 4.82psi	0.032%FS
Temperature Accuracy (Maximum Error):	+ 0.15 °C	

Calibrations are verified to 95% of maximum full scale pressure

1 of 2

#105, 1437 - 47Ave NE
Calgary, AB
T2E 6N7

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Calibration Certificate No: 5633
Calibration Date: March 2013

Working Standards

- DHI Oil Operated Piston Gauge – Model PG 7302-5, SN301 – M Range 100kPa to 500MPa \pm 0.005% FS.
- DHI 40kg Mass Set MS-AMH-40, SN2266
- Hart Scientific Black Stack – Model 2560 - SN 91362.
- Hart Scientific Platinum Resistance Thermometer – Model 5614 – SN 496051 with an accuracy of \pm 0.006 °C (\pm 0.011 °F).

Traceability Statement

All working standards are traceable to nationally or internationally recognized standards.

- DHI Model DHI PC-7302-5, SN301 traceability of mass is maintained through reference mass set R100 through determination by National Institute of Standards and Technology, NIST, United States.
- The traceability of mass is maintained to the fundamental unit of the kilogram [kg] through reference mass set R100 through determinations performed by National Institute of Standards and Technology, NIST, United States.
- The measured true mass values of the PG7302-5 components is as follows:
 - The Piston mass is equal to 200.0011g with an uncertainty of \pm 3 mg and has an average density of 7230 kg/m³.
 - The Mass Carrying Bell is equal to 800.0044 g with an uncertainty of \pm 8 mg and has an average density of 6100 kg/m³.
 - The Mass Set is made up of 10 masses of 10.1 kg or less adjusted to \pm 20 ppm of their nominal true mass values and has an average density of 8000 kg/m³. The uncertainty of the masses in mg is guaranteed to be less than 5 ppm or 1 mg, whichever is greater.
- The traceability of effective area is maintained through the 2004 DHI Piston-Cylinder calibration Chain to the National Institute of Standards and Technology, NIST, United States, and the Laboratoire national d'Essais, LNE, France.
- All DH calibrations are performed in accordance with DHI laboratory Quality assurance manual, Rev C September 2003 and conform to ISO/IEC 17025, ANSI/NCSL Z540-1-1994, ISO/IEC Guide 25, ISO 9002, ISO 10012-1, MIL-STD 45662A.
- The Platinum Resistance Thermometer (PRT) Model 5614, SN496051 was calibrated at the ice point and/or by comparison to Standard Platinum Resistance Thermometers (SPRTs). These SPRTs are calibrated to the International Temperature Scale of 1990 (ITS-90) and their calibration is traceable to the National Institute of Standards and Technology (NIST).
- Omega Well Monitoring local gravity has been determined through the National Geodetic Survey of Canada.

Calibration Performed and Approved By

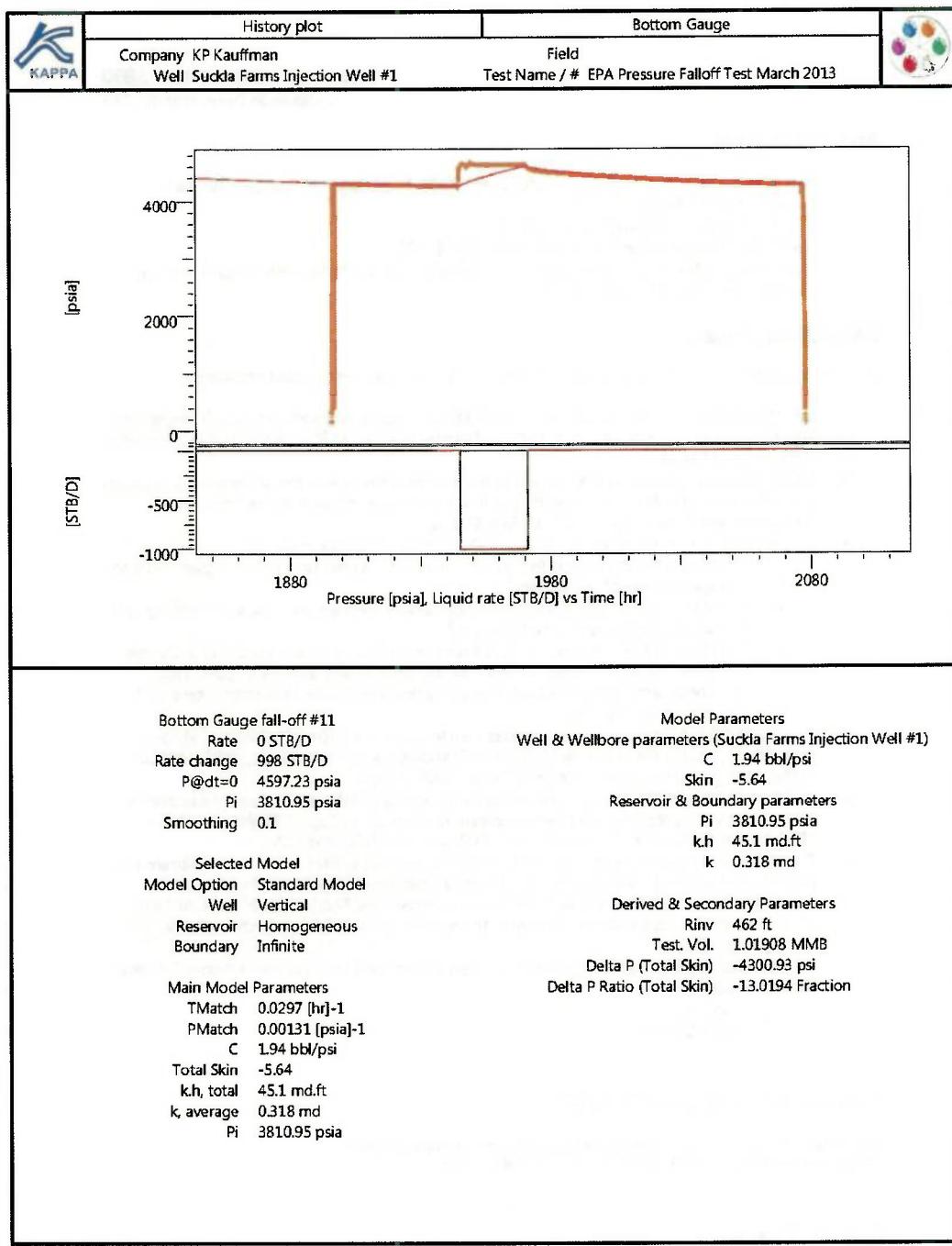
This certificate shall not be reproduced without the written approval of the laboratory.
Omega Well Monitoring recommended recalibration interval is 1 year.

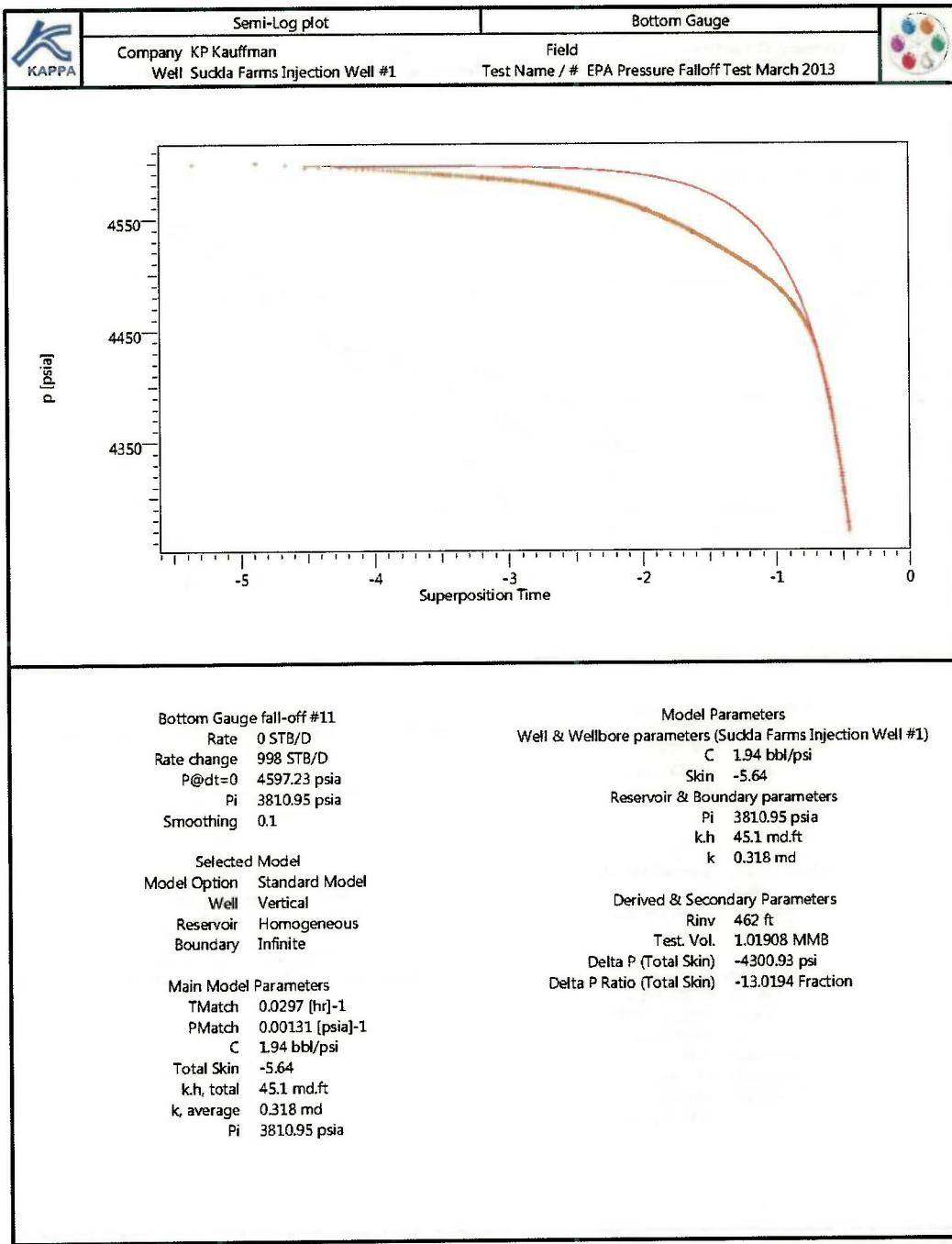
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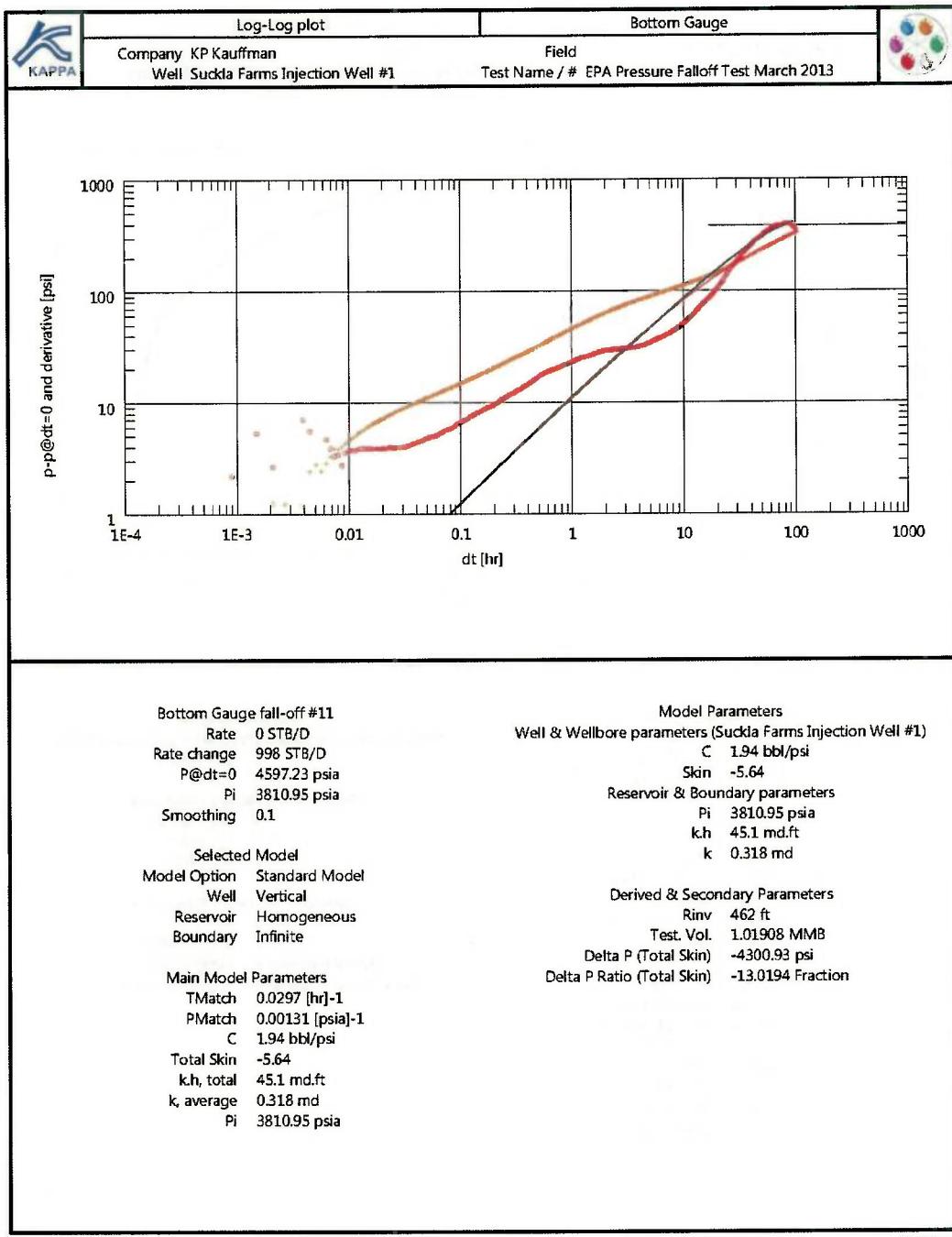
#105, 1437 - 47 Ave NE
Calgary, AB
T2E 6N7

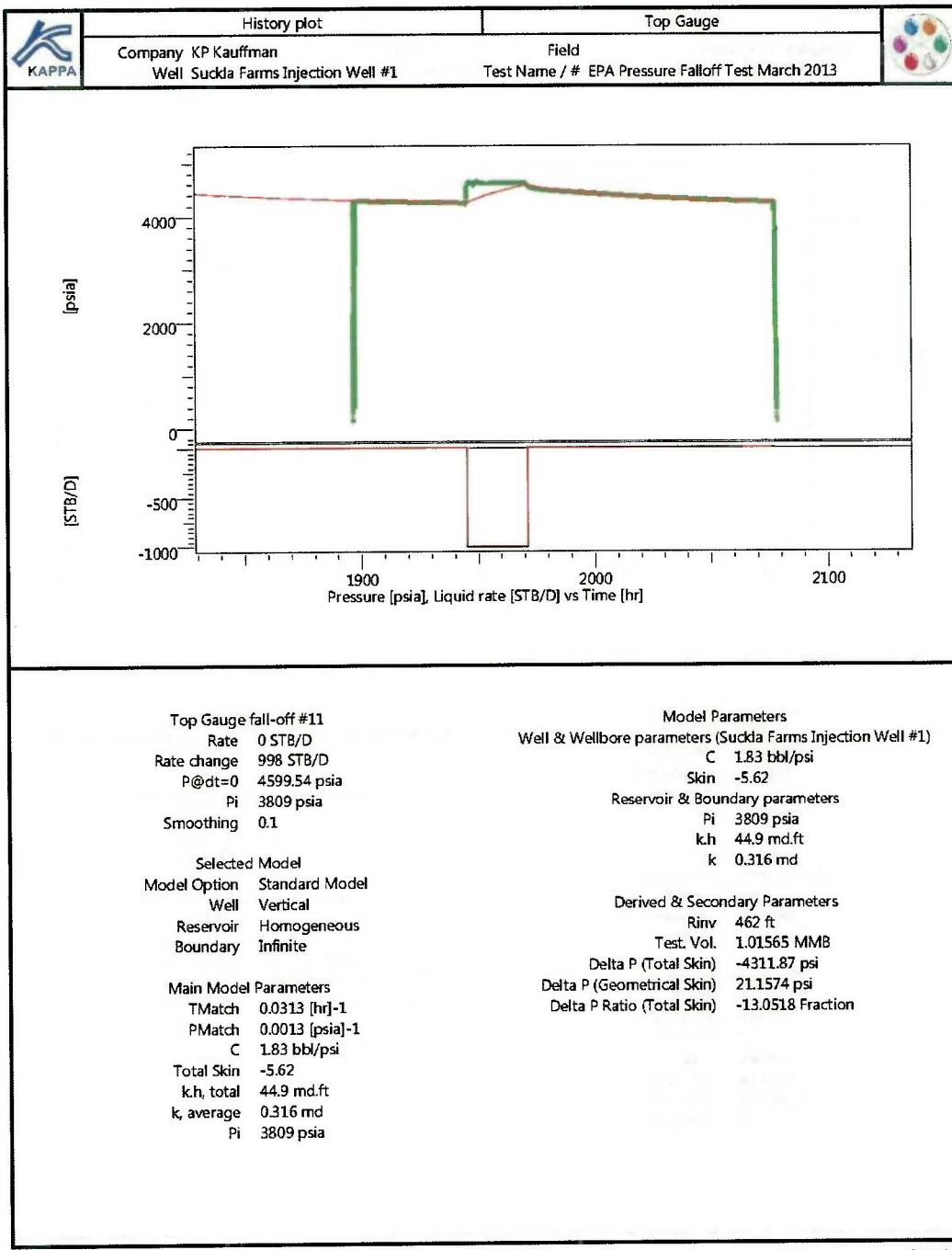
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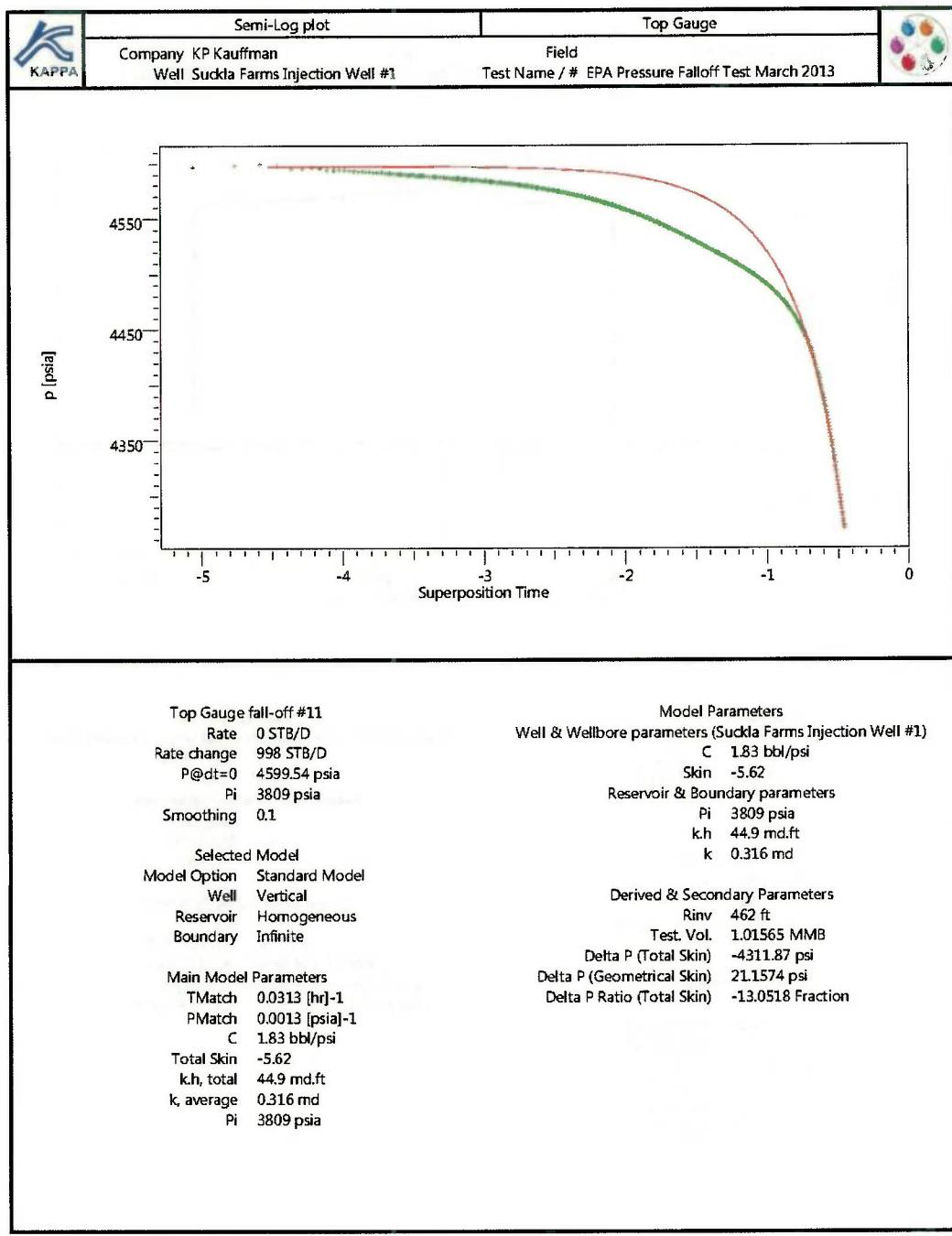
info@omegawell.com

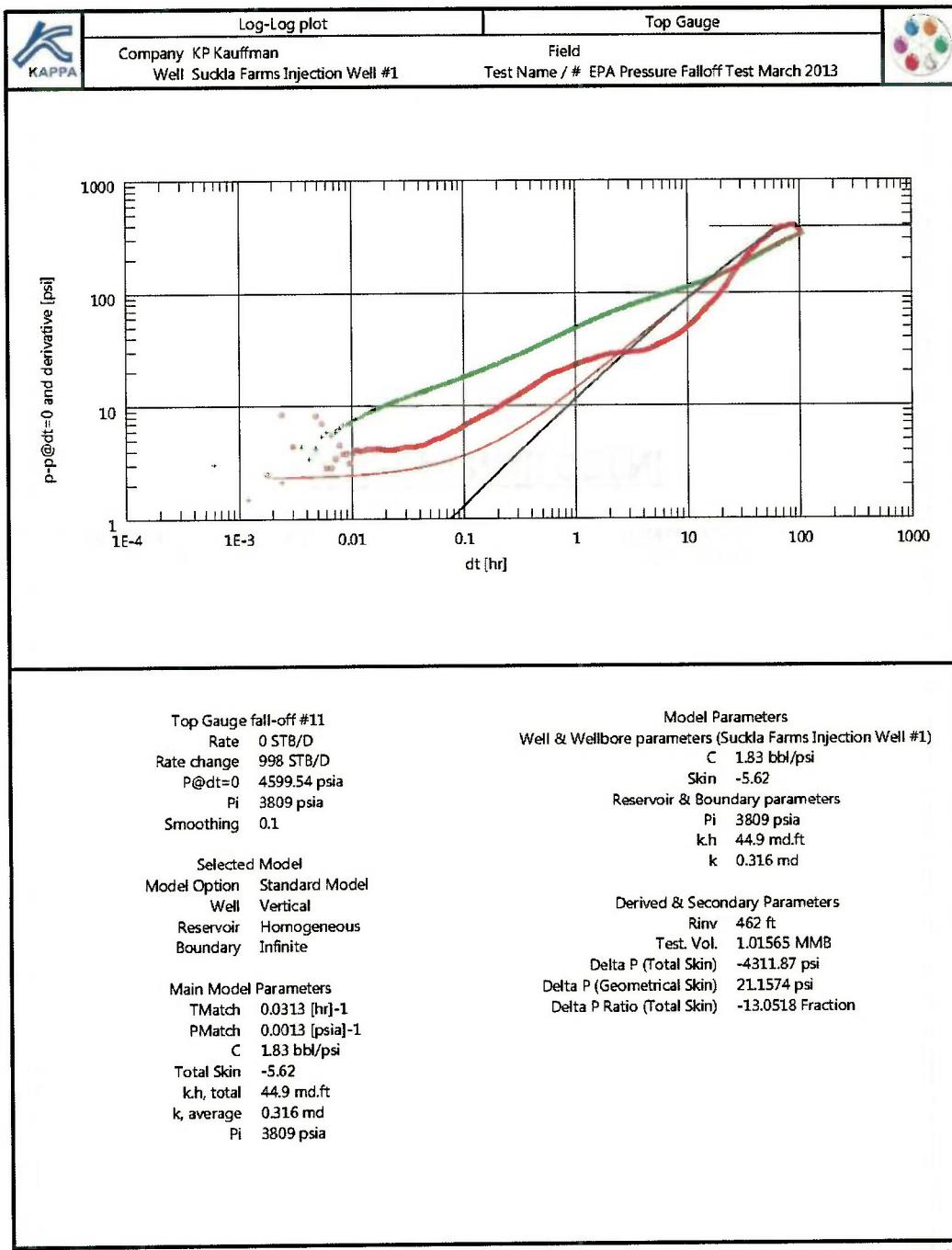












INJECTION / STATIC

KP KAUFFMAN
CORE-TECH

SUCKLA FARMS INJECTION WELL # 1

INJECTION / STATIC

Company Information

Company Name: KP KAUFFMAN
Engineer:
Service Company: CORE-TECH

Well Information

Well Name: SUCKLA FARMS INJECTION WELL # 1

Test Information

Type of Test: POOH SHUT IN
Test Date: 2013/03/18 10:17:00
Dead-weight Tubing Pressure: 235 PSI GIH 224 PSI POOH
Date / Time On Bottom: 11:37 28 AM 03/18/2013
Date / Time Off Bottom: 10:20 00 03/25/2013
Tool Serial Number: 5260

Comments

FLUID LEVEL: N/A

Pressure vs Depth (SN: 5260)

